

SECTION 3.5

ECONOMICS

I. INTRODUCTION

Concern with timber sale viability and economics, particularly how project work could be funded or accomplished without a timber sale, and request to “evaluate all of the costs and benefits of this project”, and economic impacts to the local labor pool were identified as an analysis issue for this project.

A. REGULATORY FRAMEWORK

The Custer NF Plan includes Forest-wide management goals to:

- The goal of timberland management is to harvest timber within sustained-yield capability to help maintain timber dependent communities, forest health, vigor, productivity, provide vegetative diversity for wildlife, eliminate tree encroachment on selected livestock grazing areas, and provide scenic openings.

The Custer NF Plan also includes Forest-wide management objectives (USDA Forest Service, 1986) to:

- The objective of timber management is to provide an even flow of timber products to help support local industry, maintain a healthy diverse timber resource, improve or maintain wildlife habitat, salvage dead timber, control insects and disease, and reduce natural fuel loading.
- The utilization of small diameter material and sawlog by-products will be encouraged. Commercial harvest for firewood and other small products will be used to accomplish timber stand improvement where appropriate.
- The Forest will provide direct and indirect employment opportunities through personnel programs and through jobs created by user groups as they utilize National Forest resources.

Management Area Standards relevant to the BCLMP area allow for timber harvest provided other resource considerations are considered:

- MA B: Forested areas will be managed to perpetuate or enhance livestock forage and wildlife habitat values. Management activities may include removal of wood products such as sawlogs, posts and fuelwood or transplant materials. Wildlife and range resources will be protected or enhanced.

- MA D: This management area contains land suitable for timber management. Timber management activities will be guided by silvicultural prescriptions based upon stand examinations and wildlife analysis...
- MA F: Harvest within developed recreation sites will normally be for removal of hazardous trees and protection of improvements. Timber within the recreation corridors is suitable for timber management as long as the goal of the management area can be met. Post, poles, fuelwood, sawlogs, and other wood products may be harvested from within developed sites and along access corridors providing that the recreation setting is maintained or enhanced, and the visual quality objective is achieved...
- MA G: The goal of MA G is to manage these areas for the maintenance and improvement of a healthy diverse forest and as a source of wood products for dependent local markets. Silvicultural systems will consider other resource needs such as wildlife habitat, visual impacts, and livestock management...
- MA P: This area is not part of the suitable timber base. Timber harvest may be used to protect or maintain other values.
- MA N: Harvest timber only if woody draw wildlife and fishery habitat values can be improved or protected...

Section 16 USC 1604(g)(3)(E)(iv) requires that timber will be harvested from National Forest lands only where the harvest system to be used is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber.

Executive Order 12898, issued in 1994 orders Federal Agencies to identify and address any adverse human health and environmental effects of agency programs that disproportionately impact minority and low-income populations. The Order also directs agencies to consider patterns of subsistence hunting and fishing when an agency action may affect fish or wildlife.

The Civil Rights Act of 1964 provides for nondiscrimination in voting, public accommodations, public facilities, public education, federally assisted programs, and equal employment opportunity. Title VI of the Act, Nondiscrimination in Federally Assisted Programs, as amended (42 U.S. C. 2000d through 2000d-6) prohibits discrimination based on race, color, or national origin.

B. METHODS

Scope of Analysis

This economic analysis assesses potential economic and environmental justice impacts from proposed activities. Economic measures of success for assessing the alternatives and methods used to determine that success are displayed in Table 3.5.1.

The geographic scope of the economic and social analysis includes Powder River and Carter Counties, Montana, Crook County Wyoming, and Butte and Lawrence Counties, South Dakota. This is an appropriate scope of analysis because the project will occur in Powder River County, and wood products will most likely be transported through Carter County and Butte County to Hulett, Wyoming and Spearfish, South Dakota for processing. The temporal scope of the timber

sale portion of the project is five years, and the analysis period for the entire project is seven years, the duration of all proposed activities.

Table 3.5.1: Economic Measures of Success and Analysis Methods

Measures of Success for Economics	Analysis Method
Available Revenue	Region 1 Transaction Evidence Timber Appraisal
Net Present Value	Quicksilver Financial Efficiency
Employment & Labor Income	Economic Impacts – University of Montana Bureau of Business and Economic Research Timber Response Coefficients (Morgan et al 2007) and IMPLAN (2003 Software with 2008 Data)

C. PROJECT FEASIBILITY

Project feasibility is used to determine if a project is feasible – will it sell, given current market conditions. It relies on the Region 1 Transaction Evidence Appraisal (TEA) System. The TEA uses regression analysis of recently sold timber sales to predict bid prices. The most recent appraisal model for the area of interest was used to estimate the stumpage value (predicted high bid resulting from the timber sale auction) for the timber project. The estimated stumpage value for each alternative is compared to the minimum rates (minimum return to the federal treasury) for that alternative. If the feasibility analysis indicates that the project is not feasible (estimated stumpage value is less than the minimum rates), the project may need to be modified. The infeasibility indicates an increased risk that the project may not attract bids and may not be implemented (36 CFR 223.6 and FSM 2430.2).

D. FINANCIAL EFFICIENCY

Financial efficiency provides information relevant to the future financial position of the program if the project is implemented. Financial efficiency considers anticipated costs and revenues that are part of Forest Service monetary transactions. Present net value (PNV) is used as an indicator of financial efficiency and presents one tool to be used in conjunction with many other factors in the decision-making process. PNV combines benefits and costs that occur at different times and discounts them into an amount that is equivalent to all economic activity in a single year. A positive PNV indicates that the alternative is financially efficient. Financial efficiency analysis is not intended to be a comprehensive analysis that incorporates monetary expressions of all known market and non-market benefits and costs. Many of the values associated with natural resource management are best handled apart from, but in conjunction with, a more limited financial efficiency framework. These non-market benefits and costs associated with the project are discussed throughout the document.

E. ECONOMIC IMPACTS (JOBS AND LABOR INCOME)

Economic impacts are used to evaluate potential direct, indirect and cumulative effects on the economy. The analytical technique used by the Forest Service to estimate employment and income impacts is "input-output" analysis using the IMPLAN Pro software system (MIG 2003). Input-output analysis (Miernyk 1965) is a means of examining relationships within an economy both between businesses and between businesses and final consumers. It captures all monetary market transactions for consumption in a given time period. The resulting mathematical representation allows one to examine the effect of a change in one or several economic activities on an entire economy, all else constant. This examination is called economic impact analysis. The data used to estimate the direct effects from the timber harvest and processing were provided by the University of Montana's Bureau of Business and Economic Research (Morgan et al. 2007), this national data is broken into multi-state regions and is considered more accurate than that which is available from IMPLAN. There are two BBER regions (Plains States, and Central and Southern Rockies) which include applicable states and which are weighted by destination volume (56% to Southern Rockies, 44% to Plains States) for this analysis. This BBER data represents the results of mill censuses that correlate production, employment, and labor income. IMPLAN translates changes in final demand for goods and services into resulting changes in economic effects, such as labor income and employment of the affected area's economy. The IMPLAN modeling system allows one to build regional economic models of one or more counties for a particular year. The regional model for this analysis used 2008 IMPLAN data. It was determined that the economic impact area for this portion of the CNF consists of Powder River and Carter Counties, Montana; Crook County Wyoming; and Butte and Lawrence Counties, South Dakota.

The economic impact effects are measured by estimating the direct employment (full- and part-time jobs) and labor income generated by the 1) processing of the timber volume from the project, and 2) dollars resulting from any additional land management activities of the project into the local economy affected by the treatments proposed. The direct employment and labor income benefit employees and their families and therefore directly affect the local economy. Additional indirect and induced multiplier effects (ripple effects) are generated by the direct activities. Together the direct and multiplier effects represent the total economic impacts to the local economy. The multiplier effects tied to the timber harvest and processing were estimated using IMPLAN. The direct and multiplier effects attributable to additional activities were estimated using IMPLAN. Potential limitations of these estimates are the time lag in IMPLAN data and the data intensive nature of the input-output model. Significant changes in economic sectors since the latest data for IMPLAN have been adjusted using information from the University of Montana's Bureau of Business and Economic Research.

F. ENVIRONMENTAL JUSTICE

Environmental justice effects will report what, if any, effects might occur to ethnic or disadvantaged peoples. Of particular concern is whether job or income discrimination might occur to ethnic or disadvantaged citizens in the area during or resulting from the proposed project.

II. AFFECTED ENVIRONMENT FOR ECONOMICS

A. COMMUNITY DEMOGRAPHICS

During 2006, 41,294 people lived in the five-county economic impact area (BEA REIS 2006). Between 1970 and 2006, Powder River County, MT contracted from 2,929 to 1,736 residents, Carter County, MT contracted from 1,894 to 1,270 residents, Crook County, WY grew from 4,529 to 6,077 residents, Butte County, SD grew from 7,766 to 9,227 residents, and Lawrence County, SD (the county with the greatest population) went from 17,451 to 22,984 residents.

B. EMPLOYMENT

There were 27,927 part and full time jobs in the five-county area economy during 2006, with nearly half (13,050) of these jobs created since 1970. At roughly 87% growth, or roughly 2.4% average annual growth, this was slower than the three-state aggregate and slower than the national average. Since 1970, the majority (62.5%) of new jobs were wage and salary positions (mainly in the service sector), but during 2006 self-employed proprietors still represented roughly one third of all jobs. During 2006, there were 877 manufacturing employees (including forest products) in the five-county area, and they earned average wages of \$34,104.

During 2007, the average annual unemployment rate for the five-county area was 2.7%, which was lower than the three-state average of 3.0% and lower than the national average of 4.6%. There is a clear trend of the lowest unemployment during the late summer months and increased unemployment during the winter months. While all of these numbers have likely increased since the great recession since autumn 2008, they are still much lower than the national averages.

C. INCOME

Total Personal Income (\$2006) in the five counties increased from \$570 million in 1990 to \$1,230 million in 2006 (BEA REIS, 2006). This is growth rate of approximately 116% for the 36-year period was slower than the three-state aggregate and slower than the national average. Per Capita Personal Income, adjusted for inflation increased from 16,532 to 29,793 by 2006. On the other hand, average earnings per job across the five-county area, adjusted for inflation, fell from 29,537 during 1970 to 25,950 by 2006. The explanation is for this discrepancy is that non-labor income grew as a percentage of totals from roughly 26% during 1970 to 41% by 2006. Of this 41%, roughly 24% represented income from dividends interest and rent, and 17% represented transfer payment receipts. For a detailed discussion of the existing economic conditions the project record contains detailed Socio Economic Profiles.

D. SPECIALIZATION

One measure of economic success and resilience is economic diversity, or the lack of specialization. Some communities that are heavily reliant on only a few industries are economically vulnerable to disruptions. The EPS Economic Diversity Index documents one measure of specialization based on employment data from the 2000 Census. For this index, the

total number of employees in the county divides the number of employees in each two-digit industry. This fraction is then squared for the given industry. Results for all industries in the county are then summed. This means that the more even the distribution of employees across all possible industries the smaller the score, where small scores imply greater diversity and large scores imply specialization. The specialization scores for the five-county area are 272. The sectors that most diverge from the US norm are:

- Over reliance on Agriculture, forestry, fishing and hunting (12.0% compared to 1.5% in the US)
- Under reliance on Manufacturing (5.4% compared to 14.1% in the US)
- Over reliance on Accommodation and food services (11.0% compared to 6.1% in the US)
- Over reliance on Mining (5.1% compared to 0.4% in the US)

The specialization scores for the five counties are presented in increasing order: Lawrence County, SD – 227, Butte County, SD – 289, Crook County, WY – 450, Powder River County, MT – 1,901, and Carter County, MT – 3,251. These compare to the median of 961 and a maximum of 3,441 for all 3,209 of the US counties). This information implies that Lawrence County residents are employed more evenly or in a wider spectrum of industries than residents of Carter County. However, it is notable that while these specialization scores tend to decrease as populations increase all counties share a higher than average concentration of employees in the Agriculture, Forestry, Fishing and Hunting sector (Headwaters Economics 2008).

E. CUSTER NATIONAL FOREST TIMBER PROGRAM

Table 3.5.2 displays information regarding the CNF timber program from 1997 to 2009. This display offers a time series perspective for the last twelve years. Even at the current harvest levels, volume produced by the CNFs plays a role in the wood products and home heating economy of five economic impact counties.

Table 3.5.2: The Trend in Volume Cut and Sold for the Custer National Forest and Revenue Received.

TotalYear	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sold (MBF)	3,228	3,310	625	5,588	733	2,576	9,419	801	840	6,206	4,284	1,350	8,490
Value (\$2009)	188,655	158,026	20,084	857,320	23,111	148,629	198,466	34,698	29,946	235,547	83,553	28,095	71,212
Cut (MBF)	926	1,491	5,680	502	1,143	1,397	8,524	3,709	5,570	2,231	2,428	1,853	3,966
Value (\$2009)	54,260	60,795	555,408	20,350	94,287	115,623	240,884	339,221	643,481	130,700	44,831	33,313	59,999

Figures 3.5.1 and 3.5.2 graphically illustrate the CNF cut and cold volumes from 1997 through 2009.

Figure 3.5.1: Trend in Volume Sold and Cut on the Custer National Forest (1997-2009).

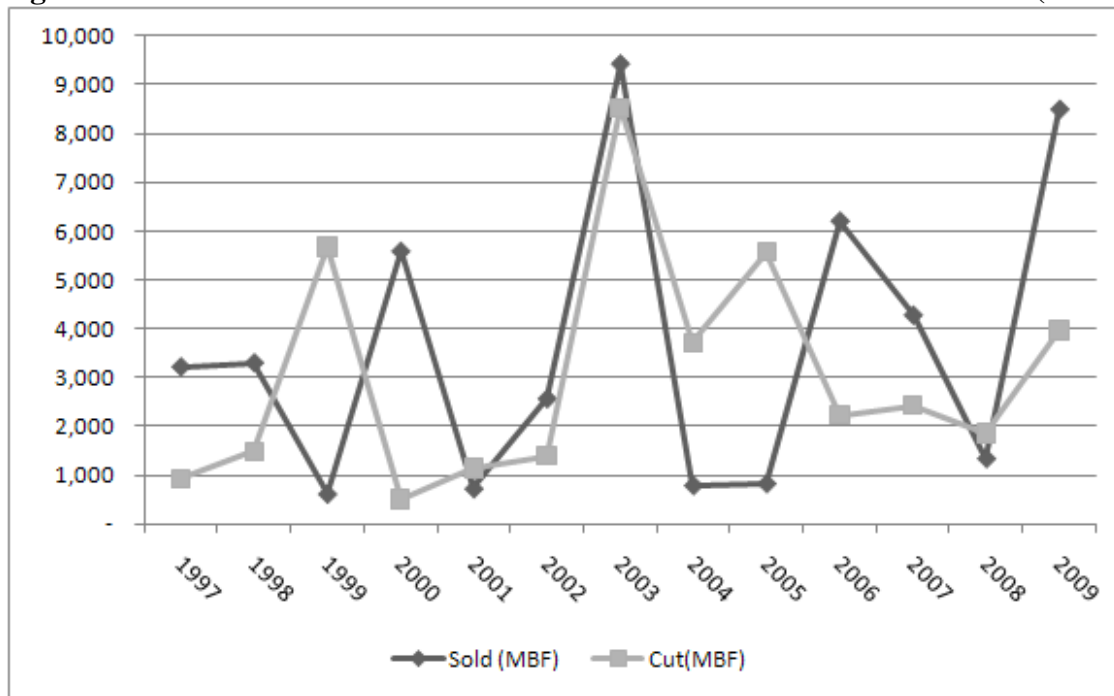
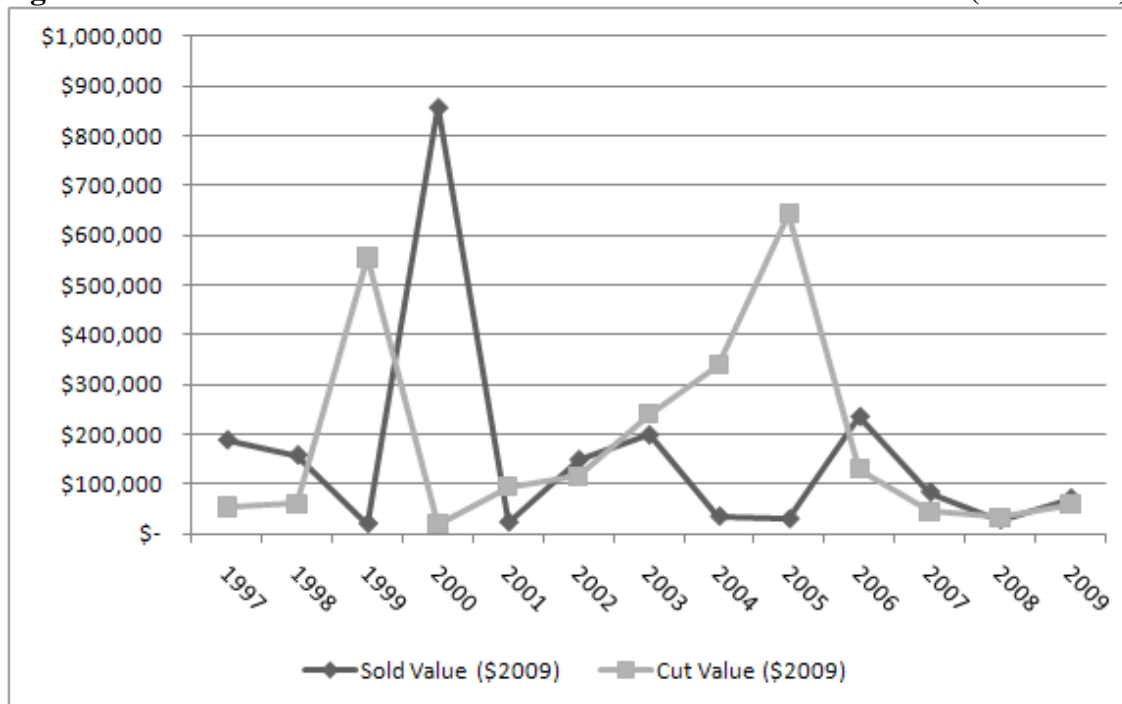


Figure 3.5.2: Trend in Timber Revenue on the Custer National Forest (1997-2009).



III. EFFECTS OF ALTERNATIVES A, B AND C ON ECONOMICS - ACTION ALTERNATIVES

A. DIRECT AND INDIRECT EFFECTS OF ACTION ALTERNATIVES ON ECONOMICS

Project Feasibility

The estimation of project feasibility was based on the Region 1 transaction evidence appraisal (TEA) model, which took into account logging system, timber species and quality, volume removed per acre, lumber market trends, costs for slash treatment, and the cost of specified roads, temporary roads and road maintenance. For this project, initial feasibility analysis suggested opportunities for redesign should be pursued. As a result, some of the roadwork and vegetation management activities have been modified to make this a more attractive sale to potential bidders; updated feasibility analysis is now presented. The estimated high bid of Alternative A - \$6.72/CCF, Alternative B - \$8.70/CCF and Alternative C - \$4.54/CCF were compared to \$3/CCF minimum rates (revenues considered essential to cover the legal minimum return to the federal treasury). The estimated predicted high bids and minimum rates for the action alternative are displayed in Table 3.5.2. The estimated high bids for Alternatives A, B, and C indicates that the timber sale portion of all three of the action alternatives is feasible. The predicted high bid from the feasibility analysis is used in the financial efficiency analysis for each alternative discussed below.

Financial Efficiency

The financial efficiency analysis is specific to the timber harvest and restoration activities associated with the alternatives (as directed in Forest Service Manual 2400-Timber Management and guidance found in the Forest Service Handbook 2409.18). Costs for sale administration and additional land management activities are included. Note that costs for sale preparation are not included because they are sunk costs that had already been expended when the two timber sales were combined for this BCLMP area sale. The specialists on the project's interdisciplinary team developed all costs, timing, and amounts. If exact costs were not known, the maximum of the cost range was used to produce the most conservative PNV result. The expected revenue for each alternative is the corresponding predicted high bid. The PNV was calculated using Quicksilver, a program for economic analysis of long-term, on-the-ground resource management projects. A 4% real discount rate was used over the seven-year project lifespan (2011-2017). For more information on the values or costs, see the project record.

This analysis is not intended to be a comprehensive benefit-cost or PNV analysis that incorporates a monetary expression of all known market and non-market benefits and costs. Many of the values associated with natural resource management are best handled apart from, but in conjunction with, a more limited benefit-cost framework. These values are discussed throughout this document, for each resource area.

Changes to resources like community protection from large-scale wildfire, forest stand health, wildlife habitat, and road decommissioning have been addressed in other sections of the NEPA

document and will not be described in financial or economic terms for this project. Long-term recreation use levels are not expected to change between any alternatives (see Section 3.10 - Recreation) and were not included in the economic efficiency analysis.

Table 3.5.3 summarizes the project feasibility and financial efficiency, including the minimum rates, predicted high bid (i.e., estimated stumpage value), total revenue, and PNV for each alternative. Because all costs of the project are not related to the timber sale, two PNVs were calculated. One PNV indicates the financial efficiency of the timber sale, including all costs and revenues associated with the timber harvest and required design criteria. The required design criteria, as used here, are 1) road decommissioning (1056 feet required by a recent Travel Management decision), 2) piling and burning landing piles, 3) rehabilitating skid trails), and 4) sale administration costs. A second PNV includes all costs for each alternative, including other land management activities that are non-timber harvest related. The costs used in the PNV calculations can be found in Tables 3.5.4 and 3.5.5, with the exception of sale administration costs (\$4.50/CCF). Sale administration costs are approximately \$101,228, \$98,114, and \$41,647 for Alternatives A, B, and C, respectively.

Table 3.5.3 indicates that Alternative A is financially efficient for the timber sale, but financially inefficient when timber and all non-timber activities are considered. Alternative A has a timber sale PNV at \$34,176, and a PNV of -\$1,328,050 for the timber sale plus additional land management activities. Alternative B has a timber sale PNV at \$71,589, and a PNV of -\$1,074,608 for the timber sale plus additional land management activities. Alternative C has a timber sale PNV at -\$7,207, and a PNV of -\$1,171,563 for the timber sale plus additional land management activities. The No Action alternative has no costs or revenues associated with it.

A reduction of financial PNV in any alternative as compared to the most efficient solution is a component of the economic trade-off, or opportunity cost, of achieving that alternative. The No Action alternative would not harvest or take other restorative actions and, therefore, incur no costs. As indicated earlier, many of the values associated with natural resource management are non-market benefits. These benefits should be considered in conjunction with the financial efficiency information presented here. These non-market values are discussed in the various resource sections found in this document.

Table 3.5.3: Project Feasibility and Financial Efficiency Summary (2009 dollars).

Category	Measure	Alt A	Alt B	Alt C	Alt D
Timber Harvest Information	Acres Harvested	2,099	2,155	767	0
	Volume Harvested (CCF)	22,495	21,803	9,255	0
	Minimum Rates (\$/CCF)	3.00	3.00	3.00	0.00
	Predicted High Bid (\$/CCF)	6.72	8.70	4.54	0.00

Category	Measure	Alt A	Alt B	Alt C	Alt D
	Total Revenue (\$2009)	\$151,166	\$189,686	\$42,018	\$0
Timber Harvest & Required Design Criteria	PNV (\$2009)	\$34,176	\$71,589	-\$7,207	\$0
Timber Harvest & All Other Planned Activities	PNV (\$2009)	-\$1,328,050	-\$1,074,608	-\$1,171,563	-\$0

When evaluating trade-offs, the use of efficiency measures is one tool used by the decision maker in making the decision. Many things cannot be quantified, such as effects on wildlife, impacts on local economies, and restoration of watersheds and vegetation. The decision maker takes many factors into account in making the decision.

The Custer National Forest received several comments on the DEIS related to project economics, including:

- “Please disclose the cost of sale preparation, including the cost to the federal government to litigate the illegal approval of the Whitetail Hazardous Fuel Reduction Project.”
- “Please calculate a third PNV that includes the cost of sale preparation in order to provide the public with a more accurate estimate of the true cost to the taxpayer for this logging project.
- “Please explain how you determined that the first PNV (“timber sale PNV”) equals \$62,393. By our calculations, the sale income (\$159,663) minus the cost of required design criteria on p.166 (\$488,473) minus the costs of sale administration (\$97,270) is - 426,080.”
- “Please explain how you determined that the “Project PNV” equals -\$1,208,232. By our calculations, the sale income (\$159,663) minus the cost of required design criteria on p.166 (\$488,473) minus the costs of sale administration (\$97,270) minus the cost for other Project activities (\$1,413,986) equals -\$1,840,066.”

The present net value is a discounted financial efficiency measure used to understand the net financial change that would accrue to the government by selecting any alternative. The analysis is forward looking, in that it does not consider investments or expenditures that have come before the decision is made. This explains why sunk NEPA planning costs are not included in the PNV analysis. In this case sale prep has occurred on all of the units proposed for silvicultural treatments under two previous projects that were consolidated to form the Beaver Creek Project,

and since these costs were incurred in the past, they are considered sunk costs, and they are not technically appropriate for a financial efficiency PNV analysis. While they should not be included in the PNV, these costs were estimated at \$17 per hundred cubic feet (CCF) volume method for total of \$382,415, \$370,651 and \$157,335 for alternative A, B and C, respectively.

The Quicksilver software performs a discounting function, which means that both costs and benefits are discounted to present values by dividing the value in each future year by 1.04 (one plus the discount rate) raised to the power of the number of years into the future when the value occurs. This is the technically correct way to derive present values. Most of the costs and revenues are spread over several years and so portions of these costs and revenues, as estimated by the ID team to occur in future years, are discounted at slightly different levels. However, while this partially explains why the total undiscounted costs in Tables 3.5.4 and 3.5.5 are larger than their present values, it does not explain the main reason why the PNV estimate in the EIS differs from what you calculate. The main explanation is that most of the design criteria are already included in the appraisal estimates of \$6.72/CCF, \$8.70/CCF and \$4.54/CCF. We only list these costs for the reader's benefit. In other words, these costs are used in conjunction with the transactions evidence appraisal system stumpage estimate to derive a revenue estimate for the wood products that would be sold as part of this project. Not included in the appraisal but essential for the sale are silvicultural exams, and sale administration, which explains why they are included in the both PNV estimates. The first PNV estimate for each alternative does not include pre-commercial thinning (none in Alternative C), non-commercial thinning, weed spraying and monitoring, 2.1 miles of road decommissioning and underburning after harvest. To disclose the effect of these on financial efficiency a second PNV is shown which includes all the items in the more limited PNV analysis plus all items found in Table 3.5.5. In addition several small changes were made to activity levels and costs in the original proposed action as it was developed into Alternative B, affecting the PNV estimates slightly.

Timber Sale and Land Management Activities and/or Appropriated Dollar Activities

Table 3.5.4 displays the essential design criteria activities and their budgetary costs (not present values), all of which are included in the appraisal of the predicted high bid with the exception of the stand exams. Design criteria include a short section of road decommissioning which must be done as part of this project to comply with the recent Ashland RD Travel Management decision and Motor Vehicle Use Map (USDA 2009a and 2009b). The Record of Decision and FEIS for the Travel Management were signed in June of 2009. Stand exams is an additional cost item in the financial efficiency analysis since exams are funded with appropriated dollars for this project.

For Alternative A, the present value of revenue after discounting is approximately \$137,180 and the present value of costs of the design criteria items not included in the TEA predicted high bid, including sale administration and silvicultural exams for the Proposed Action, is \$34,176.

Alternative B, the present value of revenue after discounting is approximately \$172,135 and the present value of costs of the design criteria items not included in the TEA predicted high bid, including sale administration and silvicultural exams for the Proposed Action, is \$71,589.

Alternative C, the present value of revenue after discounting is approximately \$38,130 and the present value of costs of the design criteria items not included in the TEA predicted high bid, including sale administration and silvicultural exams for the Proposed Action, is -\$7,207. In addition, other funding sources of appropriated dollars may be available to help fund the work deemed desirable under the Proposed Action.

Table 3.5.4: Project Activity Expenditures by Alternative Over a Seven-Year Period (\$2009).

Mandatory Activities	Alt A	Alt B	Alt C	Alt D
Temporary Road Construction/Obliteration	84,558	101,247	31,709	0
System Road Reconstruction	200,000	200,000	139,063	0
Long Term Road Storage	2,909	3,757	1,050	0
Road Decommissioning (1056 feet)	230	230	230	0
Maintenance on Haul Roads	43,605	47,481	27,294	0
Snowplowing	791	791	0	0
Slashing Damaged Residuals	64,064	68,200	51,744	0
Weed Spraying	22	248	0	0
Erosion Control (Skid Trail Rehab)	20,202	24,864	7,481	0
Landing Piling	8,890	11,430	3,302	0
Landing Pile Burning	8,260	10,620	3,068	0
Landing Rehabilitation	15,134	19,458	5,621	0
Stand Exams	8,736	9,300	7,056	0
Total, Required Design Criteria Activities	457,401	497,626	277,618	0

Table 3.5.5 displays the optional land management activities not tied to commercial harvest and their budgetary costs (not present values). The sale of timber in this project is the result of performing vegetation treatments to meet a variety of objectives such as improved wildlife habitat, hazardous fuels reduction, road decommissioning (travel plan) and forest health. Therefore, in addition to the revenues generated from the sale of associated timber, other sources of appropriated funds may be used to cover the costs associated with the optional activities. The costs associated with these additional activities are about \$1.59 million, \$1.34 million, and \$1.36 million for Alternative A, B and C, respectively.

All of the initial entry prescribed fire and maintenance burn acres in the Alternative A and C would be scheduled for maintenance burns in 10 years after initial treatments. The first follow-up maintenance burn after initial treatment is included in the efficiency analysis for these two alternatives.

Table 3.5.5: Resource Activities Not Tied to Commercial Harvest (\$2009).

Resource Activity	Alt A	Alt B	Alt C	Alt D
Road Decommissioning	2,241	2,241	2,241	0
Pre-commercial Thinning (Thinning trees 0-7" DBH, for hazardous fuels treatment in areas of potential future harvest)	33,677	33,677	0	0
Non Commercial Thinning (Thinning trees 0-7" DBH, for hazardous fuels treatment only)	1,159,121	1,103,069	972,973	0
Prescribed Under-burning After Harvest	395,340	197,670	385,660	0
Weed Spraying	2,232	2,852	868	0
Weed Monitoring	864	1,104	336	0
Total, Additional Land Management Activities	1,593,475	1,340,613	1,362,078	0

Economic Impacts Effects

The analysis calculated the jobs and labor income associated with the processing of the timber products harvested and conducting mandatory and other land management activities, such as noncommercial fuel reduction, and road decommissioning. Timber products harvested from the proposed project and the non-timber activities would have direct and indirect effects on local jobs and labor income. In order to estimate jobs and labor income associated with the timber harvest, it was assumed that 100% of harvested material would be processed by the sawmill and planning sector. In order to estimate jobs and labor income associated with the land management activities, expenditures for these activities were estimated for each alternative (see Table 2.14).

Tables 3.5.6, 3.5.8, and 3.5.10 display direct and total impact estimates for employment (part and full-time) and labor income associated with timber harvest and processing from Alternative A, B, and C. The tables show both the impacts connected with the project in its entirety, as well as estimates of annual impacts. Most of the timber harvest and wood processing jobs would occur over the first five years of the project. It is important to note that these are not new jobs or income, but rather jobs and income that can be attributed to this project.

Tables 3.5.7, 3.5.9, and 3.5.11 display direct and total impact estimates for employment (part and full-time) and labor income associated with additional proposed land management activities from Alternative A, B, and C. The tables show both the impacts connected with the project in its entirety, as well as estimates of annual impacts. Since these expenditures are expected to occur over a seven-year period, the estimated impacts of jobs and labor income would be spread out over the life of the project. It is important to note that these are not new jobs or income, but rather jobs and income that can be attributed to this project.

Table 3.5.6: Alternative A Timber Harvest and Processing Employment and Labor Income (2009 dollars) Over the Life of the Project.

Analysis Item	Total Impacts	Expected Duration	Average Annual Impacts
Direct Employment	109	5 years	22
Total Employment	219	5 years	44
Direct Labor Income (Thousands of \$)	3,172	5 years	634
Total Labor Income (Thousands of \$)	5,521	5 years	1,104

Definitions:

Employment is the total full- and part-time wage, salaried, and self-employed jobs in the region.

Labor income includes the wages, salaries and benefits of workers who are paid by employers and income paid to proprietors.

Under Alternative A, the total impact associated with the planned timber sale harvest and processing would be approximately 109 direct and 219 total jobs and \$3.17 million direct and \$5.52 million total labor income. These part and full-time jobs would be spread over the five years of expected harvest for the project. Estimates in Table 3.5.6 indicate that if the work were conducted evenly over these five years, the harvesting and processing of timber would annually support roughly 22 direct and 44 total jobs and \$634,000 in direct and \$1.10 million in total labor income for five years.

Table 3.5.7: Additional Alternative A Land Management Activities- Employment and Labor Income (2009 dollars) Over the Life of the Project.

Analysis Item	Total Impacts	Expected Duration	Average Annual Impacts
Direct Employment	37	7 years	5
Total Employment	44	7 years	6
Direct Labor Income (Thousands of \$)	1,207	7 years	172
Total Labor Income (Thousands of \$)	1,429	7 years	204

Definitions:

Employment is the total full- and part-time wage, salaried, and self-employed jobs in the region.

Labor income includes the wages, salaries and benefits of workers who are paid by employers and income paid to proprietors.

Under Alternative A, the total impact associated with implementing all additional planned land management activities would be approximately 37 direct and 44 total jobs and \$1.20 million in direct and \$1.43 million in total labor income. These part and full-time jobs would be spread over seven years. Estimates in Table 3.5.7 indicate that if activities were spread evenly over the seven years, annually the additional land management activities would support roughly 5 direct and 6 total jobs and \$172,000 direct and \$204,000 in labor income for seven years.

Table 3.5.8: Alternative B Timber Harvest and Processing Employment and Labor Income (2009 dollars) Over the Life of the Project.

Analysis Item	Total Impacts	Expected Duration	Average Annual Impacts
Direct Employment	106	5 years	21
Total Employment	212	5 years	42
Direct Labor Income (Thousands of \$)	3,073	5 years	615
Total Labor Income (Thousands of \$)	5,349	5 years	1,070

Definitions:

Employment is the total full- and part-time wage, salaried, and self-employed jobs in the region.

Labor income includes the wages, salaries and benefits of workers who are paid by employers and income paid to proprietors.

Under Alternative B, the total impact associated with the planned timber sale harvest and processing would be approximately 106 direct and 212 total jobs and \$3.07 million direct and \$5.35 million total labor income. These part and full-time jobs would be spread over the five years of expected harvest for the project. Estimates in Table 3.5.8 indicate that if the work were conducted evenly over these five years, the harvesting and processing of timber would annually support roughly 21 direct and 42 total jobs and \$615,000 in direct and \$1.07 million in total labor income for five years.

Table 3.5.9: Additional Alternative B Land Management Activities- Employment and Labor Income (2009 dollars) Over the Life of the Project.

Analysis Item	Total Impacts	Expected Duration	Average Annual Impacts
Direct Employment	38	7 years	5
Total Employment	46	7 years	7
Direct Labor Income (Thousands of \$)	1,261	7 years	180
Total Labor Income (Thousands of \$)	1,493	7 years	213

Definitions:

Employment is the total full- and part-time wage, salaried, and self-employed jobs in the region.

Labor income includes the wages, salaries and benefits of workers who are paid by employers and income paid to proprietors.

Under Alternative B, the total impact associated with implementing all additional planned land management activities would be approximately 38 direct and 46 total jobs and \$1.26 million in direct and \$1.49 million in total labor income. These part and full-time jobs would be spread over seven years. Estimates in Table 3.5.10 indicate that if activities were spread evenly over the seven years, annually the additional land management activities would support roughly 5 direct and 7 total jobs and \$180,000 direct and \$213,000 in labor income for seven years.

Table 3.5.10: Alternative C Timber Harvest and Processing Employment and Labor Income (2009 dollars) Over the Life of the Project.

Analysis Item	Total Impacts	Expected Duration	Average Annual Impacts
Direct Employment	45	5 years	9
Total Employment	90	5 years	18
Direct Labor Income (Thousands of \$)	1,305	5 years	261
Total Labor Income (Thousands of \$)	2,272	5 years	454

Definitions:

Employment is the total full- and part-time wage, salaried, and self-employed jobs in the region.

Labor income includes the wages, salaries and benefits of workers who are paid by employers and income paid to proprietors.

Under Alternative C, the total impact associated with the planned timber sale harvest and processing would be approximately 45 direct and 90 total jobs and \$1.31 million direct and \$2.27 million total labor income. These part and full-time jobs would be spread over the five years of expected harvest for the project. Estimates in Table 3.5.10 indicate that if the work were conducted evenly over these five years, the harvesting and processing of timber would annually support roughly 9 direct and 18 total jobs and \$261,000 in direct and \$454,000 in total labor income for five years.

Table 3.5.11: Additional Alternative C Land Management Activities- Employment and Labor Income (2009 dollars) Over the Life of the Project.

Analysis Item	Total Impacts	Expected Duration	Average Annual Impacts
Direct Employment	31	7 years	4
Total Employment	37	7 years	5
Direct Labor Income (Thousands of \$)	1,019	7 years	146
Total Labor Income (Thousands of \$)	1,204	7 years	172

Definitions:

Employment is the total full- and part-time wage, salaried, and self-employed jobs in the region.

Labor income includes the wages, salaries and benefits of workers who are paid by employers and income paid to proprietors.

Under Alternative C, the total impact associated with implementing all additional planned land management activities would be approximately 31 direct and 37 total jobs and \$1.02 million in direct and \$1.20 million in total labor income. These part and full-time jobs would be spread over seven years. Estimates in Table 3.5.11 indicate that if activities were spread evenly over the seven years, annually the additional land management activities would support roughly 4 direct and 5 total jobs and \$146,000 direct and \$172,000 in labor income for seven years.

Environmental Justice and Civil Rights

None of the alternatives restrict or alter opportunities for subsistence hunting and fishing by Native American tribes. Tribes holding treaty rights for hunting and fishing on the CNF are included on the project mailing list and have the opportunity to provide comments on this project.

Tables 3.5.6 -3.5.11 predict that more employment and income opportunities would be created by the action alternatives than by the No Action Alternative. Implementation of the Proposed Action alternative would not likely adversely affect minority or low-income populations.

B. CUMULATIVE EFFECTS

As with all Forest Service projects the economic consequences of these alternatives will affect a dynamic economy. Other Forest Service, federal agency, state agency, and private activities are ongoing and constantly influence product and labor markets. The listing of the cumulative impacts found in Chapter 2 is helpful in understanding the complimentary contributions to employment and labor income. However, since it is impossible to estimate the simultaneous impact of all these impacts, the impacts of the Beaver Creek alternatives have been modeled here in isolation, or all else equal.

C. OTHER REQUIRED DISCLOSURES UNDER ACTION ALTERNATIVES TO ECONOMICS

Short-term Uses vs. Long-term Productivity of Action Alternatives on Economics

Compared to the No-action Alternative D, the impacts for each action alternative described above are expected to contribute more to both the short-term and long-term productivity of the local economic area, by enhancing demand in various sectors and maintaining existing employment. Alternative A appears to make the greatest short-term contribution with slightly higher contributions to employment and labor income in harvesting and wood processing employment, whereas, Alternative B appears makes a slightly higher short-term contribution to employment and labor income associated with additional land management activities.

Irreversible/Irretrievable Commitments of Alternative A, B, and on Economics

There are non-irreversible/irretrievable commitments to economics made by any of the alternatives.

Forest Plan Consistency of Action Alternatives for Effects to Economics

The ability of the BCLMP to contribute to the following Custer NF Plan goal and objectives would decrease moving from Alternative A, to Alternative B, to Alternative C, and Alternative D would not contribute to attainment of this goal or any of the objectives listed below.

The goal of timberland management is to harvest timber within sustained-yield capability to help maintain timber dependent communities, forest health, vigor, productivity, provide vegetative diversity for wildlife, eliminate tree encroachment on selected livestock grazing areas, and provide scenic openings.

The Custer NF Plan also includes Forest-wide management objectives (USDA Forest Service, 1986) to:

- The objective of timber management is to provide an even flow of timber products to help support local industry, maintain a healthy diverse timber resource, improve or maintain wildlife habitat, salvage dead timber, control insects and disease, and reduce natural fuel loading.
- The utilization of small diameter material and sawlog by-products would be encouraged. Commercial harvest for firewood and other small products would be used to accomplish timber stand improvement where appropriate.
- The Forest would provide direct and indirect employment opportunities through personnel programs and through jobs created by user groups as they utilize National Forest resources.

D. CONCLUSIONS FOR ENVIRONMENTAL CONSEQUENCES OF ACTION ALTERNATIVES ON ECONOMICS

The timber harvest portion of all action alternatives appears to be financially feasible, as predicted high bids exceed minimum rates in each case. The fact that sale preparation has already occurred on the two projects that were combined into the Beaver Creek Project, makes these sunk costs, and helps the financial efficiency picture. The financial efficiency of the timber harvest and associated design criteria is positive for Alternatives A and B, but is roughly -\$7,207 negative for Alternative C. When the non-essential land management activities designed to improve land conditions and protect communities are included, the present net value becomes negative for all action alternatives (A = -\$1.33 million, B = -\$1.07 million, and C = -\$1.17 million). Considering that there are all similar values, the benefits that this work produce under each alternative should be evaluated by reviewing other section of the FEIS. This full picture is how the reader should evaluate the trade-offs of selecting any alternative. The employment and labor income contributions from Alternatives A and B exceed those that would be contributed by selecting Alternative C, and no employment or labor income contributions would be produced if Alternative D is selected. None of the alternatives is expected to produce environmental justice concerns.